

Claims

The following is a copy of Applicant's claims that identifies language being added with underlining ("___") and language being deleted with strikethrough ("———" or double square brackets "[[]]") if the strikethrough is not easily perceivable, *i.e.*, "4" or a punctuation mark), as is applicable:

1. (Previously presented) A circuit transferring a charge from a source to a reference potential, said circuit being placed between said source and a circuit to be protected, comprising:

a transmission line coupling the source and the circuit to be protected;

a transistor comprising a base, an emitter, and a collector, the capacitance between the base and the emitter being about ten times less than the parasitic capacitance between the collector and the substrate; and

an electrical ground;

wherein the transistor is directly connected in reverse mode between the electrical ground and the transmission line.

2. (Previously Presented) The circuit of claim 1, wherein said transistor is an *npn* transistor, the collector of said transistor is connected to the electrical ground, the base of said transistor is coupled to the electrical ground, and the emitter of said transistor is connected to the transmission line.

3. (Currently Amended) The circuit of claim 1, wherein the circuit to be protected operates at a frequency greater than 1 GHz.

4. (Original) The circuit of claim 1, further comprising a resistor coupled between the base of said transistor and the electrical ground.

5. (Original) The circuit of claim 1, wherein said charge is an electrostatic charge.

6. (Original) The circuit of claim 1, wherein said source is coupled to a pad.
7. (Original) The circuit of claim 6, wherein said pad is coupled to the lead of a package for an integrated circuit.
8. (Original) The circuit of claim 1, wherein said transistor is a *pnp*, bipolar junction transistor, the emitter of said transistor is coupled to the electrical ground, the base of said transistor is coupled to the electrical ground, and the collector of said transistor is coupled between the electrical ground and the transmission line.
9. (Original) The circuit of claim 1, wherein said transistor turns on at a predetermined voltage, wherein said predetermined voltage is higher than the operating voltage of the circuit to be protected.
10. (Original) The circuit of claim 9, wherein said predetermined voltage is 5 volts.
11. (Original) The circuit of claim 1, wherein said circuit to be protected operates at a frequency greater than 2 GHz.
12. (Original) The circuit of claim 1, wherein said transistor has a breakdown voltage less than the breakdown voltage of the circuit to be protected.
13. (Currently Amended) A method of protecting a circuit from an electrostatic discharge comprising:
 - providing a bipolar junction transistor, wherein said bipolar junction transistor comprises a base, ~~and~~ an emitter, and a collector, and said base of said bipolar junction transistor is coupled to a resistance element;
 - coupling said transistor between the circuit operating at a frequency above about 1 GHz and a pad coupled to the circuit, wherein,
 - said transistor is configured in reverse mode, the collector of said transistor being connected directly to ground; and

using said transistor coupled between the circuit and a pad coupled to the circuit to protect said circuit against electrostatic discharge.

14. (Currently Amended) The method of claim 13, wherein said transistor is an *npn* transistor.

15. (Currently Amended) The method of claim 13, wherein said circuit operates at frequencies over 2 GHz.

16. (Currently Amended) The method of claim 13, wherein said bipolar junction transistor is configured such that said bipolar junction transistor turns on at a voltage level of 5 volts.

17. Canceled.

18. (Currently Amended) The method of claim 13, wherein said transistor is a *pnp* transistor.

19. Canceled.

20. (Previously Presented) A method of using a transistor to protect a circuit operating at a frequency above approximately 1 GHz against electrostatic discharge, the method comprising the steps of:

providing a bipolar junction transistor, the bipolar junction transistor configured with a breakdown voltage less than the breakdown voltage of the circuit to be protected;

operating the bipolar junction transistor in reverse mode between a transmission line and ground to protect the circuit operating at a frequency above approximately 1 GHz from electrostatic discharge; and

coupling the high frequency circuit to a pad via the transmission line.

21. Canceled.

22. (Previously presented) The method of claim 20, wherein high frequency is above approximately 2 GHz.

23. (Previously presented) The method of claim 20, wherein operating the bipolar junction transistor includes operating with a capacitance between a base and an emitter of the bipolar junction transistor being about ten times less than a parasitic capacitance between a collector and a substrate of the bipolar junction transistor.

24. (Previously presented) The method of claim 20, wherein operating the bipolar junction transistor includes operating as an *nnp* configured bipolar junction transistor.

25. (Previously presented) The method of claim 20, wherein operating the bipolar junction transistor includes operating as a *pn*p configured bipolar junction transistor.

26. (Previously presented) The method of claim 20, further including coupling a source to the pad.

27. (Previously presented) The method of claim 20, further including coupling the pad to a lead of a package for an integrated circuit.

28. (Previously presented) The method of claim 20, wherein operating includes activating the bipolar junction transistor at a predetermined voltage, wherein said predetermined voltage is higher than the operating voltage of the circuit to be protected.

29. Canceled.

30. (Previously presented) The method of claim 20, further including coupling a resistor between a base of said transistor and the electrical ground.